



## Vibration Recording and Monitoring

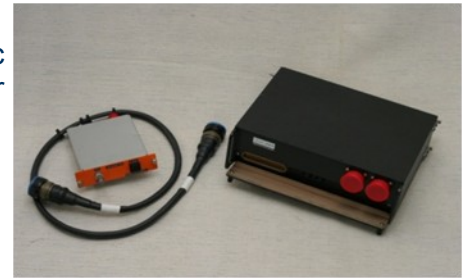
**SEA and AgustaWestland (AWHL) have developed and built a solid-state vibration recording and monitoring system for use in civil and military airborne environments.**

**Based on this vibration monitoring and recording architecture SEA and Helitune have developed a Continuous Vibration Monitoring/Rotor Track & Balance system**

### VIBRAtrak

The VIBRAtrak system can be configured to monitor specific frequencies and detect when thresholds are exceeded either within the embedded software or hardware detection circuitry.

The system can record eight channels of sensor data with options for 12 channels available. The recorder provides 4mA constant current power to the sensor channels along with open and short circuit error detection. The system can be easily tailored to customer requirements.



*Vibration monitoring unit*

Operation is automatic and is initiated either by detection of a pulse stream exceeding a threshold such as a shaft encoder, or when sensor data exceeds a programmable threshold. The recorder ceases recording when all of the channels are below the switch-off thresholds, also programmable, and the pulse stream is below threshold. The system is hot swappable and delivers:

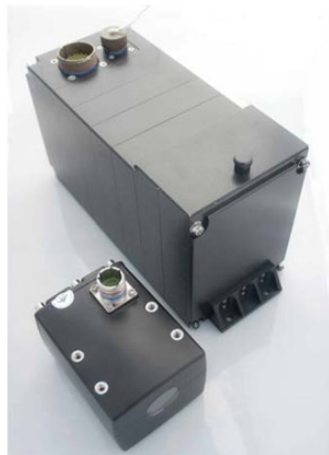
- continuous sample of vibration transducers at 2kHz
- monitoring of critical tail rotor frequencies to produce visible or invisible alarms for out of bounds vibrations, but without false alarming
- record of data and events to removable solid state flash memory (CF Flash)

### Continuous Vibration Monitoring/Rotor Track & Balance (CVM/RTB)

Jointly developed by SEA and Helitune under contract to AWHL (MIPT originated) CVM/RTB combines SEA's recording architecture and Helitune's RTB architecture on a common platform

A CVM/RTB development unit has been fitted to a Royal Navy (RN) Merlin Mk1 aircraft at AgustaWestland (mid 2010) and early results from the first flight trials have been very encouraging

SEA's equipment includes a permanent fit camera, provides facilities for structural vibration monitoring, Rotor Track & Balance (RTB) measurements and RTB corrections



*CVM/RTB modules and Royal Navy Merlin*